

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

AD-A269 630



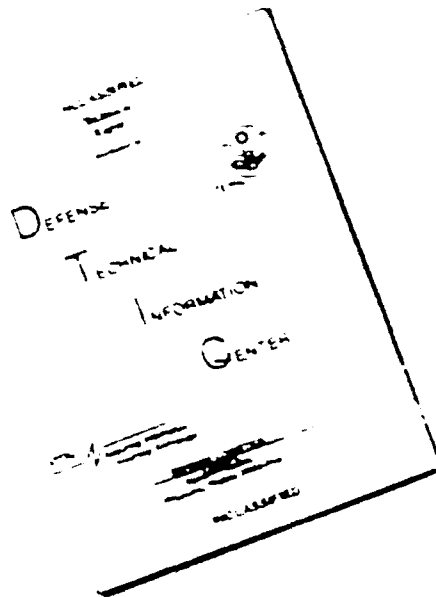
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2 REPORT DATE 1 Sep 85		3 REPORT TYPE AND DATES COVERED Final SEPTEMBER 1985	
4 TITLE AND SUBTITLE PRODUCTIVITY, SLACK, AND TIME THEFT IN THE SOVIET ECONOMY EVIDENCE FROM THE SOVIET INTERVIEW PROJECT		5 FUNDING NUMBERS C NONE	
6 AUTHOR(S) P. Gregory			
7 PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Soviet Interview Project Univ. of Illinois Urbana, IL 61801		8 PERFORMING ORGANIZATION REPORT NUMBER NONE	
9 SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Office of the Secretary of Defense Office of the Director of Net Assessment Rm 3A930, The Pentagon Washington, D.C. 20301		10 SPONSORING/MONITORING AGENCY REPORT NUMBER 85-3371	
11 SUPPLEMENTARY NOTES			
12a. DISTRIBUTION/AVAILABILITY STATEMENT A. Approved for public release; distribution is unlimited.		12b. DISTRIBUTION CODE	
13 ABSTRACT This study uses eyewitness accounts of enterprise operations as an unconventional source of information on Soviet productivity and worker behavior.			
14 SUBJECT TERMS Soviet Union Worker Productivity		15 NUMBER OF PAGES 50	
		16 PRICE CODE	
17 SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18 SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19 SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20 LIMITATION OF ABSTRACT SAR

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PRODUCTIVITY, SLACK, AND TIME THEFT
IN THE SOVIET ECONOMY:
EVIDENCE FROM THE SOVIET INTERVIEW PROJECT

Paul R. Gregory

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Data for this study were produced by the Soviet Interview Project. This project was supported by Contract No. 701 from the National Council for Soviet and East European Research to the University of Illinois Urbana-Champaign, James R. Millar, Principal Investigator. The analysis and interpretations in this study are those of the author, not necessarily of the sponsors.

This paper is one of a set that present the first formal findings of the General Survey Questionnaire. The instrument was administered to 2,793 Soviet emigrants who arrived in the United States between January 1, 1979 and April 30, 1982. The papers will be discussed at a conference of the Research Team with Government specialists and others at Airlie House, Virginia, October 27-29, 1985. The contents of the papers will not be presented at the conference in detail, but the findings will be briefly summarized. The purpose of the conference will be to subject the papers to rigorous analytic assessment, and general familiarity with the subjects discussed will be assumed.

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First Draft
September, 1985

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INTRODUCTION

This study uses eyewitness accounts of enterprise operations as an unconventional source of information on Soviet productivity and worker behavior. The Soviet Interview Project (SIP) collected information from approximately 2,900 former Soviet citizens who reported on the jobs they held at the end of their last "normal" period of life in the Soviet Union. For the vast majority of respondents, the end of their last normal period was 1977 or 1978. Soviet Interview Project respondents were asked a number of factual and opinion questions concerning their work place. They were asked to assess productivity (whether it was rising or falling and the reasons why), their perception of the amount of slack (as measured by the difference between actual enterprise staffing and staffing perceived as needed to meet plan targets), their assessment of problems that their enterprises faced (such as supply disruptions or widespread alcoholism). They also responded to questions on firings and career advancement within the firm. Respondents were asked a wide range of factual questions concerning their actual labor force and leisure time behavior such as second jobs held, private economic activity, and time spent shopping both during and after work hours.

This paper addresses two questions. The first is how Soviet workers, as eyewitnesses at the firm level, assessed Soviet productivity in the late 1970s. Do Soviet workers give productivity a high or low rating, and, if low, what is their explanation for poor performance? The second question addressed by this paper is the effect that perceptions of the efficiency and discipline of Soviet enterprise operations have on actual behavior? If,

for example, a respondent gives his or her enterprise a low efficiency rating, does this low rating have a systematic effect on the reported behavior of the respondent? How does the perceived laxness or tightness of discipline affect actual behavior?

These two questions are relevant to the study of the contemporary Soviet economy. Both Soviet and Western analysts agree that Soviet labor and capital productivity growth rates have been declining, and that the downward trend accelerated in the second half of the 1970s.¹ This study cannot capture time trends in Soviet productivity because SIP respondents report on enterprise productivity only during their last normal period of life in the Soviet Union. Declining productivity growth -- if substantial and sustained -- should find reflection in eyewitness accounts as a general perception of productivity problems. Just as Western respondents naturally judge current inflation relative to past inflation experiences, so should Soviet respondents gravitate towards assessing productivity performance relative to past trends.

Respondent explanations of the causes of poor productivity performance are potentially of greater significance than their reportings of poor productivity performance. Quantitative analysis of Soviet productivity, employing the standard tools of growth accounting, is able to quantify trends in Soviet factor productivity. There will always be a margin of error on estimates of Soviet factor productivity due to input and output measurement problems and uncertainty over production function specifications, but conventional productivity calculations should yield a more reliable picture of Soviet productivity than aggregations of productivity perceptions of former Soviet workers.² In fact, as we shall

demonstrate below, the main value of the micro productivity assessments is to reveal the mental picture which respondents hold of their former enterprises. Having this mental picture allows us to gauge its impact on actual behavior.

Standard growth accounting reveals the percentage of economic growth that is *not* accounted for by input growth (the so-called residual) and the growth rate of this residual.³ Studies of Soviet factor productivity, for example, reveal that the growth rate of the residual has been falling over the years and that the percentage of growth "explained" by the residual has been falling.⁴ The productivity residual has been called a "measure of our ignorance;" therefore, a finding that productivity growth is falling (and that GNP growth is falling *ceteris paribus*) leaves us painfully ignorant of the *causes* of productivity and output growth declines. Although growth accounting specialists have sought to develop techniques to penetrate the residual, their attempts remain based on guesswork and intuition.⁵ Unconventional information, such as eyewitness assessments, offers as good an opportunity to delve into the residual's mysteries as any other existing method.

Can micro eyewitness accounts shed light on a macro phenomenon such as an economy-wide decline in productivity growth? We can only speculate on the answer. Nonexpert eyewitness accounts would be unlikely to reveal small changes in productivity patterns nor would they give useful information on the causes of such changes. However, nonexpert eyewitnesses (even in small numbers) are more likely to provide relevant information on major changes in the macroeconomy. For example, the Great Depression of the 1930s or the German hyperinflation of the 1920s

could have been readily picked up from a small number of eyewitness accounts. Eyewitness accounts of Polish workers could have easily picked up the declining real output in Poland in the wake of the Solidarity repression. Whether eyewitness accounts could have pinpointed the causes of such dramatic events is a different question. Polish eyewitnesses could have correctly identified the collapse of worker morale, and the Weimar worker could have identified over-worked government printing presses as the causes of the macro event. Eyewitnesses to the Great Depression would have been harder pressed to identify its causes -- a matter still debated among experts. At the branch level, American workers likely could have identified inefficient regulatory rules as the source of low productivity in commercial aviation and interstate trucking prior to deregulation in the early 1980s.

The use of eyewitness accounts to identify sources of productivity problems is new only in the sense that information is being gathered from nonexpert participants. Analysts of the Soviet economy have devoted a great deal of attention to identifying inefficient working arrangements. Abram Bergson, for example, has examined Soviet resource allocation practices that contribute to economic inefficiency (as evidenced by non-equalization of rates of return at the margin of various economic activities).⁶ Western economists have even attempted to put efficiency-cost price tags on various Soviet practices.⁷ The identification of inefficient Soviet working arrangements -- storming, inefficient investment allocation rules, overcommitment of construction funds, labor hoarding -- provides a qualitative explanation for observed productivity differentials between the Soviet Union and the industrialized

countries (after adjustment for differences in levels of economic development).⁸

Modern macroeconomic theory provides another rationale for using eyewitness accounts of enterprise performance. Macroeconomic theory has rediscovered its micro foundations, and macroeconomists now consider individual search rules in labor markets, the formation of inflationary expectations, information costs, microeconomic contracting behavior, and individual tax incentives to account for macro phenomena like movements in real output and employment.⁹ The behavior of utility-maximizing individual has become the basic unit of analysis in modern macroeconomics.

Given the revived interest in individual behavior and individual perceptions of economic phenomena in the Western macro literature, it appears reasonable to use a similar approach in the Soviet case. SIP respondents reveal their perceptions of a number of phenomena -- enterprise productivity, enterprise discipline, career advancement rules within the enterprise, changes in personal living standards, tightness of enterprise targets, and so on. The natural question is how these perceptions affect actual reported behavior? If the respondent felt that there was considerable slack in the enterprise, did this perception affect the respondent's time theft at place of work or propensity to engage in second economy activities? Did a perception of taut enterprise targets cause the respondent to alter the supply of effort?

THE SOVIET INTERVIEW PROJECT QUESTIONNAIRE

Respondents to the SIP questionnaire are not experts on the Soviet enterprise. Rather they play the role of observers of events and are asked to give factual and subjective answers on various aspects of enterprise operations. SIP respondents were asked two types of questions: enterprise-specific questions that cast them in the role of observers of microeconomic working arrangements, and respondent-specific questions concerning their own personal experiences and impressions. These two types of responses form the data base for this study. We review the relevant questions in the next section.

Questions that Use Respondents as Observers of Enterprise Operations

Some 900 respondents who reported working during their last period of normal life in the Soviet were asked directly about their perceptions of productivity in the Soviet Union. A screener question identifies respondents who believed that labor productivity was declining in the Soviet Union over the years. Specifically respondents were asked:

It has been said that the productivity of labor in the Soviet Union has been declining over the years. From your own experience during your last normal period, would you say that was true or not?

For those respondents answering that the statement is true, an open-ended question was asked:

In your opinion, why was the productivity of labor declining?

Interviewers automatically probed to determine if respondents wished to give more than one reason. Respondents who volunteered more than one reason were asked to identify the main reason for the productivity decline. The responses to these open-ended questions were then coded into the different categories.

These questions must be handled with care in productivity analysis. We do not know the extent to which responses are based upon the respondent's own work experiences. Although respondents were asked to base their answers on their own experience, it is still possible that respondents generalized from conversations, press reports, or other second-hand information sources. The average respondent is not an expert on labor productivity, and respondents are reporting on their perceptions of a very small piece of Soviet economic reality. Obvious caution must be exercised in going from aggregations of these responses to conclusions about economy-wide productivity. Moreover, the concept of productivity is inherently complex in any setting. The question asks specifically about declining labor productivity, which is a rare economic phenomenon, not about a declining rate of growth of labor productivity. It was feared that respondents would be confused by a question stated in terms of declining rates of growth, and more simple but technically-inexact language was chosen. The appropriate interpretation is that affirmative responses signify that respondents felt that labor productivity was a problem. The exact magnitude of the problem cannot and should not be read from such responses. The more important part of the question is the respondent's volunteered explanation of the causes of the perceived productivity problem drawn from the respondent's own experience.

In the second set of enterprise-specific questions, respondents were asked to report on the organizational slack they observed at their place of work. The first (screening) question asks:

On your last job, do you think it would have been possible to fulfill the plan with fewer workers and employees, or would it have not been possible?

For those who answered affirmatively, a follow-up question was asked:

How many workers and employees do you think were really needed to fulfill the plan?
On your job, could you have met the targets with X% fewer workers?

Respondents were started with the plan being fulfilled with 5% fewer workers, and were allowed to build up to plan targets being fulfilled with 50% fewer workers.

These questions on organizational slack force the respondent more directly to speak about personal workplace experiences, so there is less danger of second-hand generalizations. The slack questions address productivity more indirectly because respondents are asked to assess labor redundancy in terms of assigned plan targets. If an unrealistic target is set for the firm, and the respondent answers that there was no slack, this does not mean that the enterprise was operating more efficiently (in the economist's sense of the term) than one that was assigned easy targets operating with slack. The question does, however, get at the issue of labor utilization, an important component of labor productivity.

A final set of enterprise-specific questions deals with miscellaneous matters that may have indirectly impacted on enterprise productivity.

Respondents were asked to describe observed job-related problems. They were asked whether they typically had enough information to do their job well, whether they had sufficient equipment and supplies, whether they were given an opportunity to use their specialty, whether they could influence supervisor decisions that affected them, and the extent to which alcoholism and absenteeism were a problem.¹⁰ Second, respondents were asked to relate factors that were most important and least important for career advancement at their place of work.¹¹ Third, respondents were asked whether "workers who performed poorly" were fired and how regularly. Finally, respondents were asked to rate whether the party committee and the trade union made things better or worse at their place of work.¹²

These questions allow respondents to directly to make observations that are potentially relevant to productivity at their place of work. Respondents were allowed to rate factors that have been identified in the literature as enterprise-specific problems in the Soviet Union (alcoholism, lack of supplies, failure to use worker specialties, etc.) and to rate them according to perceived severity. Secondly, respondents were given the opportunity to relate to what extent job advancement was on the basis of merit. Presumably a merit-based advancement system is more conducive to productivity advances than other systems. Third, respondents were given the opportunity to rate the work of organizations that supplement enterprise decision making (the party committee and the trade union). The literature has identified union and party intervention as reducing the efficiency of enterprise operations.¹³

Questions on Respondent's Behavior and Characteristics

The SIP questionnaire asks the standard socioeconomic background questions of respondents -- age, sex, nationality, earnings, hours worked, job responsibilities, work history, and so on. These personal characteristics are important in the subsequent analysis because different backgrounds and work experiences may systematically affect respondent perceptions of various enterprise phenomena.

We are also interested in the actual behavior of respondents in certain areas. Respondents were asked to report on their personal behavior within the enterprise. Specifically, they reported on other jobs they had in the state sector (and hours worked in such jobs) and on whether they had private sector activities (and the hours devoted to these activities). Respondents also reported on the use of work time for personal business (like shopping or running errands) -- whether they did so and how often. These two sorts of questions are particularly relevant because they permit us to investigate the relationship between specific aspects of enterprise operations and actual behavior.

RESULTS

In this section, we present the basic results of our analysis. Some of our findings confirm a priori expectations; others conflict with prior-held notions concerning the Soviet economy. The basic analytical tool is multiple regression analysis. When the dependent variable under investigation is dichotomous, logit regressions are used. When the dependent variable is continuous, ordinary least squares is employed.

Productivity Declining?

Figure 1 classifies respondents who felt that "productivity has been declining over the years" according to the number of subordinates they supervised. Figure 1 reveals how perceptions of productivity vary from the shop-floor (respondents with no subordinates), to foremen (6-10 subordinates), to lower managers (11-24 subordinates), up to middle and upper managers (25 or more subordinates). Classification of productivity perceptions by supervisory responsibilities may yield another insight: The higher the level, the more likely the respondent is to have an "informed" opinion on enterprise productivity. A respondent supervising 500 employees would be more knowledgeable about the productivity performance than a manual worker in the same enterprise.

We warned that responses to the productivity question should not be interpreted literally because of the lack of general understanding of the economic concept of productivity and for other reasons. A report of declining labor productivity does not necessarily mean the respondent believes that workers were producing progressively less real output over time. Affirmative responses more likely signify that the respondent felt that enterprises were turning in a "poor" productivity performance.

With this proviso in mind, let us turn to the results. As Figure 1 shows, 74 percent of the respondents answered that Soviet productivity was

declining, and the percentages do not appear to vary systematically with the number of subordinates. Multiple regression analysis isolates the characteristics of enterprises and of respondents that lead to systematically higher reportings of falling productivity. A number of enterprise-specific characteristics (branch, whether poor workers were fired, respondent ratings of supply shortages and alcoholism, whether job advancement was based on merit) could have potentially significant effects on productivity ratings. Respondent-specific characteristics (such as sex, age, supervisory responsibilities, and educational attainment) can also affect productivity assessments because different respondents, within the same enterprise and branch, will have had different work experiences.

The logit regression results of enterprise-specific and respondent-specific characteristics on productivity ratings (where the dependent variable equals 1 if "productivity falling, zero if otherwise) are recorded in footnote 14. The logit regression shows that respondents who felt that job advancement was based on merit were *less likely* to report falling productivity. Respondents who worked in enterprises in which poor workers were fired were *more likely* to report falling productivity. Enterprises in which supply disruptions and alcoholism were reported as serious problems did not have systematically higher reports of falling productivity. The branches of the economy in which respondents were more likely to report falling productivity (with manufacturing as reference point) were construction, municipal economy and housing,

science, the credit, state, and party apparatus, and education. Women and older respondents were *more likely* to report falling productivity than male respondents and young respondents.

Some of the above results coincide with a priori expectations while others come as a surprise. Enterprises whose workers believe advancement is based upon merit would be expected to receive better productivity report cards. It is also expected that construction and housing, branches often singled out for criticism in the Soviet press, be identified by their workers as experiencing falling productivity. The high frequency of falling productivity reports from respondents working in science and education may be indicative of productivity problems in these branches. Notably, respondents fail to single out health care as a troubled-productivity sector contrary to Western criticism of the failing Soviet health care sector.¹⁵

We hold no strong a priori expectations concerning the effects of sex or age on productivity assessments, but it is surprising that older respondents systematically gave more negative productivity assessments than their younger cohorts. This particular finding goes against the general pattern encountered by SIP researchers who find that older respondents generally tend to give a more optimistic assessment of Soviet economic life than their younger cohorts.¹⁶

The logit productivity regression provides two further surprises. First, the perceived severity of enterprise supply and alcoholism problems does not systematically affect respondent reportings of

declining productivity. This result is unexpected in light of the vast Soviet and Western literature (and official Soviet concern) on the negative effects of the cumbersome supply system and rampant alcoholism. A second unexpected finding is that the discipline imposed by the threat of firing does not appear to raise productivity. Enterprises in which poor workers were usually fired have a higher frequency of reports of declining productivity than enterprises in which poor workers were never fired. Although the "carrot" of merit advancement does appear to have a positive effect on enterprise productivity (in the eyes of respondents), the "stick" effect of threatened firings is perceived to have a perverse effect.

Reasons Productivity Declining

Respondents who reported that productivity was declining were asked to give their opinion of the reasons for this decline. The reasons advanced for declining productivity by SIP respondents fall into five general groups. 1. incentive and pay problems (low pay, poor housing, bad working conditions, worker disappointment), 2. poor management, 3. overcentralization (the economic system), 4. resource deficiencies (lack of sufficient workers, poor technology, 5. bad workers (absenteeism, alcoholism, apathy). To some degree, these categories can overlap. "Bad workers" may be a consequence of lack of incentives. Poor management may be a consequence of the economic system.

Figure 2a gives the categories of volunteered responses again broken

down by number of persons supervised. Higher level supervisors are likely to give more informed opinions, and they also may view enterprise problems differently from shop-level workers. As Figure 2a shows, there is agreement on this point from shop-floor workers to managers. Bad management is a poor second to incentive problems as the cause of falling productivity. There is general agreement across supervisory levels on the other causes except that higher managerial personnel are more inclined to blame alcoholism and apathy, while the foreman-level respondents are more likely to blame worker shortages and poor technology.

We have also examined the pattern of responses by the respondent's branch and education. Figure 2b shows that the highest proportions of respondents citing incentive problems worked in culture, health, construction, manufacturing, and education (in declining order). Respondents appear to be most critical of bad management in municipal economy and housing, construction, and transportation and communications. Housing, construction, and transportation thus are rated as the worst-managed branches of the Soviet economy. Figure 2c shows that the proportions of those reporting incentives as the cause of falling productivity rise with the level of education of the respondent. Some 55% of non-high-school graduates, 67% of high school graduates, 75% of respondents with secondary specialized, and 79% of respondents who completed some higher education cite incentive problems as the major cause of falling productivity.

A logit regressions relating various enterprise-specific and

respondent-specific factors to the cited causes of falling productivity is reported in footnote 17. Because of the emphasis by respondents on incentive problems, we set the dependent variable equal to 1 if the respondent cites incentive problems (0 for anything else). Basically, we are attempting to determine whether there is significantly different variations among the different types of respondents on the importance of incentives as the main cause of productivity problems. The results can be simply summarized: They show that there is uniform agreement among respondents from different branches. Conditions in the firms (such as perceptions of merit advancement or firings) do not appear to affect the assessment of merit problems. The logit results do show, however, that women and younger respondents are more likely to cite incentive problems.

The most important finding of this section is the overwhelming agreement among respondents that incentives are the key to Soviet productivity problems. In the view of most respondents, poor productivity performance is not caused by the economic system, bad management, or apathetic or drunk workers. Rather its root cause is the failure of the system to provide a system of personal incentives that motivates high levels of performance.

It is difficult to assess this result. Western analysts of the Soviet economy have typically argued that the wage and bonus systems represent the most rational elements of Soviet resource allocation.¹⁸ Studies of Soviet income distribution find that the degree of inequality may not be much different from the industrialized West.¹⁹ Why then should Soviet

workers single out the material incentive system as the major cause of faltering productivity? The most convenient explanation is that respondents are reacting to perceived "inadequate" absolute (as opposed to relative) material incentives. If the economy fails to provide what is generally perceived to be a "fair" average return for effort (at least relative to the return anticipated in light of the system's resources), participants may diminish effort and hence labor productivity. This reaction would occur even if the relative incentive system (what I receive relative to what you receive) is correctly calibrated for economic efficiency.

Respondent reports of personal real wage trends and of perceived poverty incidence support this interpretation. Over 61 percent of the respondents perceived that their real wages fell over the previous five years. Macro theory teaches that the *perception* of falling real wages (whether true or not) should reduce labor effort. In a planned centralized economy, falling real wages (as perceived by enterprises) would not spur aggregate supply. These two factors could theoretically combine to reduce productivity growth. It is clear that respondents judged the material rewards offered by the Soviet economy to the community to be deficient. When asked to guess what proportion of the families in their community earned less than a poverty income, respondents reported about one-third. Moreover, the feature of Soviet life that evoked the strongest dissatisfaction among respondents was the general unavailability of goods in their community. Statistical series on real wages and on income

distribution cannot capture the effect of consumer market disequilibrium on incentives and morale. This is more likely to be captured by subjective responses.

Organizational Slack

The slack question -- another measure of enterprise productivity -- provides respondents with another opportunity to assess enterprise efficiency. Rather than asking about output per unit of labor input, respondents are asked to judge the incidence of redundant labor. Redundancy is measured relative to staffing required to meet plan targets.

Figure 3a shows that 47 percent of the respondents (of those who had a plan) felt that the enterprise plan was taut -- that the plan could not have been fulfilled with fewer workers. Of the remaining 53 percent, 49 percent stated that the plan could have been fulfilled with 5% fewer workers (meaning 4% felt that the plan could have been fulfilled with 1-4% fewer workers); 35% felt it could have been fulfilled with 10% fewer workers; 22% felt it could have been fulfilled with 20% fewer workers; and 11% felt the plan could have been fulfilled with half the workers. If we take 20% fewer workers and above as our measure of substantial enterprise slack, then roughly one fifth of the respondents (working in enterprises that had a plan) classified their enterprises as having substantial redundant labor.

Figure 3a shows organizational slack as reported by respondents with

different supervisory responsibilities. Respondents with no subordinates and respondents occupying foreman positions reported the same percentage (20%) of substantial slack. The highest reportings of slack were by those who supervised 11 to 25 workers (32% reported that the plan could have been fulfilled with 20% fewer workers). In general, higher level respondents were more inclined to report enterprise overstaffing.

Figure 3b identifies those occupations in which more slack was reported. The progression is fairly clear-cut. Researchers, planners and administrators, culture and arts personnel, and engineers reported more slack. Skilled white collar, low-skilled white collar, and blue-collar workers reported little slack. Judged in terms of proportions reporting that their "plan could be fulfilled with 50% fewer workers", the two occupations with the least slack were skilled white collar workers and skilled and semi-skilled blue collar workers.

The multiple regression results on reported slack (recorded in footnote 20) show that more highly educated respondents, respondents with more subordinates, and male respondents systematically report more slack. The amount of slack does not vary systematically with the age of the respondent. The branches of the economy in which the greatest amounts of slack are reported are transportation and communication, housing, and construction. The placement of transportation and communications in the high-slack category comes as a major surprise because transportation is typically pictured as a bottleneck sector in the Soviet economy.²¹ The depiction of construction as a labor-redundant

sector is also shocking because it is typically reported to be labor-starved owing to the problems of recruiting and retaining construction workers. One possible resolution of this puzzle is that capital equipment and materials, not labor, may be the true bottleneck resources in transportation and construction.

What overall conclusions should be drawn from this exercise? First, the amount of slack reported by respondents does not appear to be staggering. About one half say that there were no redundant workers in their enterprises. About one out of five felt that enterprise responsibilities could have been met with 20 percent fewer workers. Workers and employees performing the actual routine tasks of the economy felt that there was less slack than their superiors. It would be interesting to administer the same slack questions to American workers and employees. It would not be surprising if the results were broadly similar. These results do indeed confirm the existence of redundant workers in the Soviet Union. They suggest that there are too many scientists, engineers, and cultural workers. There are too few skilled white collar workers and too few semi-skilled blue collar workers. They also reveal an unexpected pattern of redundancy in branches least expected.

Other Factors Affecting Productivity

Productivity is affected by work conditions, social interactions, and managerial styles. We have shown how perceptions of enterprise operations can affect perceptions of productivity, the reasons for productivity trends, and the incidence of reported slack. In this section, we attempt to draw a portrait of the enterprise operating environment from respondent reports.

SIP respondents were asked to assess various problems -- not having enough information to do one's job, not having enough equipment and supplies, alcoholism, having to go against one's better judgement, not being able to use one's speciality, and not being able to influence the superior's decisions -- that have been singled out in the Soviet and Western literature. Figure 4 shows how respondents with different supervisory responsibilities assess various job problems within their enterprises. The most striking distinction is that high-level supervisors (with more than 25 subordinates) tended to see more serious problems than those below them. About 60% of high-level supervisors perceived supply and equipment problems and alcoholism to be serious problems, while only circa 33% of respondents having a lower number of subordinates (or none at all) rated these problems as serious. It should be noted that foreman-level respondents (supervising 6-10 people) did consider supply and equipment problems as serious. Moreover, high-level supervisors expressed greater concern about not having enough information than the people below them. High-level respondents also complained more frequently about "having to go against their better

judgement" in performing their jobs. There is agreement among respondents at all supervisory levels that one cannot influence the decisions of one's superiors in the Soviet enterprise.

Presumably, job performance is affected by the perception that job advancement is due to merit. We have shown above that respondents working in enterprises in which career advancement was based upon merit had a more favorable view of enterprise operations in the Soviet economy. Respondents were asked what factors determined who got ahead in the enterprise where they worked. Figure 5 gives respondent answers broken down into merit advancement (higher education, expertise, talent, good work) and non-merit factors (party membership, connections, good relations with boss, being the right nationality). The pattern by supervisory levels is noteworthy. There is a general upward trend in the proportion of those citing merit reasons for advancement as one moves up the administrative ladder. However, at the highest level (those supervising more than 25 subordinates), a relatively small proportion (29%) cite merit as the most important reason for job advancement. Fifty eight percent cite, instead, party membership and connections as most important. It should be noted that less than half the respondents (39%) believed that merit is the most important factor behind job advancement. The majority (at all levels of supervisory authority) cite non-merit factors as dominating job advancement.

Given the important role attributed to merit factors in accounting for productivity and respondent complaints about the incentive system, it appears as if the widespread use of non-merit advancement criteria has its economic costs. When enterprises choose to base career advancement

on connections, party membership, good relations with the boss, and so on, productivity-enhancing factors like higher education and acquired knowledge come to be neglected insofar as there are personal costs to acquiring them. As a caveat, it should be mentioned that this is an area where sample bias could distort the results. This sample was particularly exposed to job discrimination and would be more likely than the general Soviet population to emphasize non-merit factors. The key question to interpreting these results is the extent to which respondents do indeed cast themselves in the role of *observers* of enterprise operations. The question on advancement criteria asks them to report on how things were generally done at their enterprise, not how they as individuals were treated.

Respondents were also asked to rate the effect of the party committee and the trade union on enterprise performance. The majority said that the party committee had no effect on production, 33 percent said that the party committee made things better, 15 percent said that they made things worse. Seventy five percent of the respondents reported that the trade union had no effect on wages, while the remaining 25 percent said that the trade union made wage problems better. Sixty two percent of the respondents reported that the trade union had no effect on workers' welfare, while 37 percent felt that the trade union improved worker welfare. These results suggest that (as the literature expected) enterprise trade unions have little power to affect economic outcomes. They also suggest that the enterprise party committee is far from the powerful "second boss" of the enterprise described in earlier literature. These responses suggest a largely indifferent role for the trade union and

party organizations within the enterprise. It is noteworthy that they are viewed, to a degree, as benevolent (although largely powerless) organizations. About one-third of the respondents did feel that, on the whole, the trade union and enterprise party organization did make things better.

PERCEPTIONS AND BEHAVIOR: TIME THEFT AND SECOND JOBS

We have reported worker perceptions of enterprise operations. We now turn to the question of how these perceptions affect actual respondent behavior. Specifically, we are interested in how worker perceptions affected their behavior on the job (as measured by reported "time theft" from the workplace) and the propensity to take on second jobs or engage in second-economy activity.

Time Theft

SIP respondents were asked whether, at their job, they "sometimes used work time for personal business (like shopping or running errands)?" If they answered affirmatively, they were asked to report how many times per week (on average) and the average duration of the absence from work.

Figure 6 shows that 59 percent of SIP respondents (with jobs) reported engaging in no time theft. The cross tabulations in Figure 6 suggest that respondents were less likely to engage in time theft if they worked in enterprises where advancement was based upon merit and in which poor workers were fired. More highly educated respondents reported

more time theft than less highly educated respondents.

The logit regression results are recorded in footnote 22. The time-theft dependent variable is "1" if respondents reported time theft and "0" if they did not. We hypothesize that time theft depends upon discipline conditions and career advancement criteria within the enterprise, upon the respondent's perception of whether he or she is working in a poorly-run enterprise (as proxied by whether productivity was falling), upon the respondent's perception of whether his or her living standards were rising or falling, and by certain background characteristics of the respondent (such as age, sex, and education level).

The logit results confirm the simple cross-tabulations of Figure 6 by showing that time theft was systematically *lower* in enterprises that rewarded according to merit and that fired poor workers. Older respondents were *less likely* to steal time than younger workers. Time theft was *more likely* to be reported by workers who felt that productivity was declining in their enterprises. More highly educated workers were *more likely* to report time theft.

Whether respondents felt that their living standards were falling or rising did not systematically affect the reporting of time theft. The sex of the respondent also did not have a significant effect on time theft. Branch effects appear to be weak; there is no strong evidence that time theft is systematically differentiated across economic branches.

Ordinary least squares regressions were run on the sample of those respondents reporting time theft to determine the factors that systematically affected the *amount* of time theft. These regressions (also reported in footnote 22) reveal that, of those who steal time from

the workplace, women and more highly educated respondents tend to steal more time. Although the perception of a declining standard of living does not affect the probability of time theft, it does increase the amount of time theft among those who engage in time theft. The factors that significantly reduce the probability of stealing work time -- like working in enterprises that fire poor workers or use merit criteria for career advancement -- do not significantly affect the amount of time theft.

What conclusions can we draw from these results? The most important is that there are systematic determinants of time theft in Soviet enterprises. Enterprises in which discipline is tighter (in the form of firings of poor workers) are hit less hard by time theft. Enterprises that base career advancement on merit considerations suffer less time theft. Although the perception of a declining standard of living does not alter the probability of being a time thief, it does affect the amount of time theft. In a sense, workers who steal time retaliate against their enterprises for a perceived drop in real wages by stealing larger amounts of time.

Second Jobs and the Second Economy

Respondents can react to perceived conditions in their enterprises by devoting their time and energies to activities outside their primary place of employment. The social consequences of this diversion of effort are not immediately clear because additional output is produced outside the primary enterprise, but perhaps at the cost of output from the primary enterprise.

SIP respondents were not particularly active in second jobs in the

state sector or in second economy activities. Only 6 percent held second state jobs at the end of the last normal period. SIP respondents participated more actively in private sector jobs. Some 13 percent reported having "private work or a private job other than a private plot."

We postulate that respondent perceptions of enterprise operating conditions, the enterprise reward system, and personal characteristics systematically affect the probability of second jobs and private sector employment. Logit regressions were run in three variants. In the first regression, the dependent variable was coded as "1" if the respondent reported either a second state job or private sector employment (zero if otherwise). In the second variant, the dependent variable is "1" if the respondent reported a second state job, and in the third variant it is "1" if the respondent reported private economic activity. The logit results are shown in footnote 23. The logit results show that women and older respondents were *less* likely to have second jobs or private activities. The two branches whose workers report higher incidences of second jobs and private activity appear to be health and education. These results (based upon a nonconverging logit regression) appear reasonable insofar as private tutoring in education and private practice in medicine are well-known sources of private income in the Soviet Union.

The main finding is that enterprise characteristics appear to have little impact on the incidence of private sector activity or second jobs. Economic activity outside of the regular job appears to be more determined by personal characteristics (like being young or being male) than by firm characteristics.

CONCLUSIONS

This study provides insights into the perceptions of former Soviet workers and employees of the operation of the enterprises in which they worked and the effect of these perceptions on their behavior. We have seen that Soviet workers give low productivity ratings on the basis of their work experiences in the Soviet Union, and they overwhelmingly blame the lack of incentives. Their ratings depend upon the type of enterprise in which they worked. Apparently, working in an environment in which rewards were based upon merit raises productivity assessments, but working in enterprises in which poor workers were fired perversely lowers productivity assessments. The consensus that inadequate incentives are the root cause of productivity problems is consistent with the reported widespread dissatisfaction with perceived trends in real wages, the availability of goods, and the incidence of poverty. Respondents only rarely blamed factors like the economic system or bad management for productivity problems.

Respondents did not rate as too serious enterprise problems, such as supply problems, alcoholism, and information problems, that have been emphasized by the literature. It is, however, true that the most highly-placed respondents were more disturbed by these problems than were respondents who occupied lower positions in the economy. The amount of slack reported by respondents does not seem to be extraordinary, and some of the slack branches reported by respondents (transportation and construction) were surprising. The closer the respondent was to the shop floor, the less likely the respondent was to

report significant slack. The majority of respondents felt that career advancement in their enterprises was not based upon merit, suggesting that the lack of merit criteria is a source of efficiency losses in the Soviet economy. Respondents viewed the enterprise trade union and party organizations as largely ineffectual, but a minority did cast these organizations in a positive light. Respondents were least likely to steal time who worked in enterprises in which poor workers were fired and in which advancement was based upon merit. More highly educated respondents engaged in more time theft, and time theft appears to be spread evenly among branches. The types of enterprise in which respondents worked did not appear to systematically affect the incidence of second jobs or of private sector activity.

The most difficult analytical question is what these findings actually mean and how they should be interpreted. On the one hand, the behavioral findings do not present a problem in interpretation. When respondents working in enterprises that used merit criteria reported less time theft, the hypothesis is sustained (until set aside by other data) that merit criteria encourage a more disciplined work force. On the other hand, when there is a lower incidence of reportings of falling productivity in enterprises that reward according to merit, does this actually mean that productivity is raised by the use of merit rewards? Or does it simply mean that this is what respondents believe is true? When respondents report that the dominant cause of productivity problems is incentives, should we interpret this as a true insight into the workings of the Soviet system or as a naive impression of nonexpert witnesses? We do not have a firm answer to these questions. We can cite instances where the testimony of

nonexperts does yield true insights (such as the causes of hyperinflation). On the other hand, the testimony of nonexpert eyewitnesses can yield incorrect insights (such as the tendency for eyewitnesses to believe that moderate inflations have cost-push origins because this is what they see). At this juncture, we do not know in which category to place our nonexpert witnesses of the Soviet macroeconomy. Let us hope that subsequent research will shed more light on this matter.

NOTES

1. See Gertrude Schroeder, "The Slowdown in Soviet Industry, 1976-1982," *Soviet Economy*, Vol.1, no.1 (January/March 1985), pp.42-74; Herbert Levine, "Possible Causes of Deterioration of Soviet Productivity Growth in the Period 1976-80," Joint Economic Committee, *Soviet Economy in the 1980s: Problems and Prospects, Part 1* (Washington, D.C.: U.S. Government Printing Office, 1982), pp.153-168; Abram Bergson, "Technological Progress," Abram Bergson and Herbert Levine (eds.), *The Soviet Economy Toward the Year 2000* (London: Allen & Unwin, 1983), pp.34-78.
2. For examples of the debate over the measurement of Soviet productivity growth, see Martin Weitzman, "Soviet Postwar Growth and Capital-Labor Substitution," *American Economic Review*, Vol.60, no.4 (September 1970), pp.767-92; Padma Desai, "The Production Function and Technological Change in Postwar Soviet Industry," *American Economic Review*, Vol.66, no.3 (June 1976), pp.372-81; Abram Bergson, "Notes on the Production Function in Soviet Postwar Industrial Growth," *Journal of Comparative Economics*, Vol.3, no.2 (June 1979), pp.116-26.
3. For a standard treatment of the measurement of factor productivity, see Edward Denison, *Why Growth Rates Differ* (Washington, D.C.: Brookings, 1967).
4. On this see Paul Gregory and Robert Stuart, *Soviet Economic Structure and Performance*, 3rd. ed. (New York: Harper and Row, 1986), Chap. 11. Also see the sources in reference 1.
5. See, for example, Denison's *Why Growth Rates Differ* and John W. Kendrick, "Survey of the Factors Contributing to the Decline in U.S. Productivity Growth," Federal Reserve Bank of Boston, *The Decline in Productivity Growth*, Conference Series No.22, June 1980.

6. Abram Bergson, *The Economics of Soviet Planning* (New Haven Yale University Press, 1964).

7. Judith Thornton, "Differential Capital Charges and Resource Allocation in Soviet Industry," *Journal of Political Economy*, vol.79 (May/June 1971), pp.545-61; Padma Desai and Ricardo Martin, "Efficiency Loss From Resource Misallocation in Soviet Industry," *Quarterly Journal of Economics*, vol.98, no.3 (August 1983), pp.441-56.

8. It is difficult to establish empirically that Soviet productivity is low holding the Soviet level of development constant. For a discussion of this issue, see Frederic Pryor, *A Guidebook to the Comparative Study of Economic Systems* (Englewood Cliffs, N.J.: Prentice-Hall, 1985), chapter 6. Also see Abram Bergson, "Comparative Productivity and Efficiency in the USA and USSR," Alexander Eckstein (ed), *Comparison of Economic Systems* (Berkeley: University of California Press, 1971), pp.161-219.

9. See Robert Barro, *Macroeconomics* (New York: John Wiley, 1984); Roy Ruffin and Paul Gregory, *Principles of Economics*, 2nd. ed. (Glenview, Ill: Scott, Foresman, 1986), chaptls 11-13.

10. The question reads: "I'm going to read you some things that might have described your job. For each thing that I mention, tell me whether it was true of your job nearly all the time, often, sometimes, rarely, or never." The interviewer then read the following statements concerning the respondent's job: a. You had enough information to do your job well. b. You had to do things against your better judgement. c. You were given an opportunity to make use of your specialty. d. You were able to influence your supervisor's decisions that affected you. e. You had sufficient equipment and supplies to do your job. f. There was a problem with alcoholism and absenteeism among the workers.

11. The question reads: Many different things can help a person to advance his or her career. In your opinion, which item was the most important for career advancement at your job...? The card which respondents were handed lists eight factors. The

eight factors were higher education and a diploma, knowledge and experience, being a man not a woman, being a member of the party, having protektzia and connections, having talent and ability to organize the work of others, having ability and desire to get along with superiors, and being a member of a specific nationality.

12. The party question reads: At that place where you worked, what effect did the party committee have on production problems -- did they make things better, did they make things worse, or did they have no effect? The trade union question reads: At that place where you worked, what effect did the trade union have on wage and premium problems? What effect did it have on working conditions and workers' welfare?

13. The writings of Berliner and Granick on Soviet management during the 1930s through the 1950s suggested that managers were hampered by the interference of the primary party organization and trade union. On this, see Joseph Berliner, *Factory and Manager in the USSR* (Cambridge, Mass.: Harvard University Press, 1957) and David Granick, *Management of the Industrial Firm in the USSR* (New York: Columbia University Press, 1954).

14. The logit results for "productivity falling" = 1 are given below (consult Appendix A for list of variable names).

The dependent variable is **PRODOWN**:

"It has been said that the productivity of labor in the Soviet Union has been declining over the years. From your own experience during your last normal period, would you have said that was true, or not?" If Yes/true, coded 1. If No/Not true/Don't know, coded 0.

The logit coefficients (LOGIT model: $(\text{LOG}(p/(1-p)))/2 + 5$) = Intercept + BX) are:

	Regression Coefficient	Standard Error	T-Statistic
CONSTANT	4.77298	.23065	20.69342
SUPPLY	.24028	.15485	1.55170
BOOZE	-.12914	.11940	-1.08154
MERIT	-.35594	.10852	-3.28000
PINKSLIP	.11384	.04905	2.32065
FDUMMY	.35726	.11538	3.09646
AGE	.00839	.00413	2.03175
DSKILLED	-.02980	.12411	-.24009
SUBORD	.00120	.00136	.88682
BD2	-.75759	.60800	-1.24602
BD3	.04338	.23050	.18820
BD4	.65938	.22557	2.92314
BD5	.21180	.17495	1.21061
BD6	.55425	.39641	1.39817
BD7	.40791	.23759	1.71687
BD8	.13995	.18630	.75119
BD9	.63855	.20798	3.07023
BD10	.40047	.40937	.97824
BD11	.35981	.21165	1.69999
BD12	.96139	.38932	2.46941

Number of observations = 571.

15. The most prominent studies of the crisis in Soviet health care have been conducted by Murray Feshbach. See, for example, Murray Feshbach, "Issues in Soviet Health Problems," in Joint Economic Committee, *Soviet Economy in the 1980's: Problems and Prospects*, Part 2 (Washington, D.C.: U.S. Government Printing Office, 1983), pp.203-227.

16. See, in particular, the contribution by James Millar and Elizabeth Clayton in this volume.

17. The logit regressions on reasons for "productivity falling" are reported below (consult appendix A for list of variable names): The dependent variable is Incent. Incent is defined as follows:

Respondents were asked to give reasons for the decline in labor productivity. Some gave one, others gave two reasons. If they gave two they were asked to say which was the main reason. The code on the next page creates the dependent variable for the logit regression. One's were assigned to one-answer respondents who answered that incentives mattered and to two-answer respondents who said that incentives were the more important reason.

Incentive Codes: Variables: YDOWN1, YDOWN2, YDOWN.

1="Lack of incentives; lack of monetary incentives";

2="Unavailability of consumer goods";

4="Bad living conditions";

5="People are no longer motivated by fear";

28="Bad working conditions";

29="People were dissatisfied disappointed NEC"

The logit coefficients (LOGIT model: $(\text{LOG}(p/(1-p)))/2 + 5$) = Intercept + BX) are:

	Coefficient		
CONSTANT	5.42530	.21661	25.04589
MERIT	-.06828	.10932	-.62458
PINKSLIP	.02828	.04529	.62436
FDUMMY	.18446	.10168	1.81404
SUBORD	.00011	.00047	.24291
RAGE	-.00710	.00394	-1.80282
DSKILLED	-.00106	.11464	-.00928

Number of observations = 434

18. On this, see Paul Gregory and Robert Stuart, *Soviet Economic Structure and Performance*, 3rd. ed. (New York: Harper and Row, 1986), chapter 8. Also see Abram Bergson, *The Economics of Soviet Planning* (New Haven: Yale University Press, 1964), chapter 6.

19. Abram Bergson, "Income Inequality Under Soviet Socialism," *Journal of Economic Literature*, Vol.22, no.3 (September 1984), pp.1052-1099.

20. The multiple regression results on reported slack are given below (consult Appendix 1 for list of variable names):

Multiple regression dependent variable is SLACK. Slack is defined as follows:

"On your (last) job (in/before) (END OF LNP) do you think it would have been possible to fulfill the plan with fewer workers and employees, or would it not have been possible?" Response=FEWERWRK

If FEWERWRK=2, Would not have been possible, then SLACK=0%

If FEWERWRK=1, Would have been possible, then

"How many workers and employees do you think were really needed to fulfill the plan? On your job, could you have met the targets with...2.5%,5%,10%,20%,50% fewer workers." (Note: the 2.5%

implicit in those who thought could fulfill with fewer workers, but not with 5% fewer workers) SLACK=2.5%, 5%, 10%, 20%, 50%.

	Coefficient Estimate	Standard Error	T-Statistic
CONSTANT	5.641529	3.488273	1.617
FDUMMY	-4.118873	1.315053	-3.132
SUBORD	.012718	.006695	1.900
RAGE	-.011890	.049047	-.242
REDHIQ	.729914	.354148	2.061
BD2	2.246920	6.770418	.332
BD3	-1.429125	2.967776	-.482
BD4	2.254802	2.200402	1.025
BD5	1.359631	1.984492	.685
BD6	9.196858	4.195895	2.192
BD7	9.000155	2.569370	3.503
BD8	-.671275	2.666325	-.252
BD9	-2.373014	2.564582	-.925
BD10	-1.664234	4.881379	-.341
BD11	10.110767	2.650443	3.815
BD12	8.913987	3.479004	2.562

R Square .10070

589 observations

Adjusted R Square .07720

21. Holland Hunter and Peggy Dunn, *The Soviet Transport Situation*, Soviet Transportation Research Project Executive Summary, Wharton Econometric Forecasting Associates, 1984.

22. The logit and ordinary least squares results on time theft are reported below (consult appendix A for list of variable names).

***** LOGIT ANALYSIS *****

Dependent Variable = TIMETHFT

TIMETHFT:

"While you were working at that job, did you sometimes use work time for personal business (like shopping or running errands)?"
(Yes=1)

(LOGIT model: $(\text{LOG}(p/(1-p)))/2 + 5) = \text{Intercept} + \text{BX}$):

	Regression Coefficient	Standard Error	T-Statistic
CONSTANT	5.23676	.21253	24.64006
RAGE	-.01383	.00367	-3.76926
DSKILLED	.28101	.10914	2.57477
DOWN	.24269	.11344	2.13929
YREALCH	.07458	.09815	.75987
MERIT	-.23223	.09931	-2.33833
PINKSLIP	-.09112	.04253	-2.14231
FDUMMY	-.09618	.09598	-1.00209
BD2	.90387	.59415	1.52129
BD3	.19789	.21310	.92860
BD4	.06721	.16936	.39683
BD5	-.02297	.15735	-.14595
BD6	.20836	.28359	.73473
BD7	.07146	.18778	.38056
BD8	-.22784	.17544	-1.29871
BD9	-.42842	.16783	-2.55268
BD10	-.30103	.35353	-.85151
BD11	.26147	.18788	1.39169
BD12	.09312	.24380	.38197

Number of observations = 582

***** MULTIPLE REGRESSION *****

Dependent Variable: TIMEGOOF

TIMEGOOF:

"While you were working at that job, did you sometimes use work time for personal business (like shopping or running errands)?"

If no, then observation dropped.

If yes, "How many times a week did you do that?"

If 0, then coded .333 times per week. Otherwise 1 to 7.

Frequency times "On average, when you used official work time to conduct personal business, how much time per day did you spend doing so?"

	Coefficient Estimate	Standard Error	T-Statistic
CONSTANT	183.539697	84.319952	2.177
YREALCH	65.571989	36.873106	1.778
SUBORD	.054033	.110968	.487
FDUMMY	-61.064346	34.927739	-1.748
PINKSLIP	-3.640750	16.160014	-.225
DSKILLED	72.956671	42.932003	1.699
MERIT	-11.511851	40.584287	-.284
RAGE	-1.908919	1.532172	-1.246
DOWN	-33.587117	46.857800	-.717
BD2	59.330135	148.728180	.399
BD3	90.840790	74.804740	1.214
BD4	-16.735313	62.871817	-.266
BD5	62.562898	62.246136	1.005
BD6	183.506664	88.523359	2.073
BD7	151.667627	68.202859	2.224
BD8	-52.214673	67.925311	-.769
BD9	59.839575	65.191339	.918
BD10	-125.758908	173.930483	-.723
BD11	-61.388081	65.291285	-.940
BD12	-76.519838	82.328070	-.929

Multiple R .36058

R Square .13002

Number of observations = 213

23. The logit results on second jobs and second economy activities are reported below (consult Appendix A for list of variable names).

Dependent Variable: OTHERJ

OTHERJ:

If respondent worked in a regular state or cooperative job during the end of LNP and answered yes to ENDLNPJ2 and PRIUJOB:

ENDLNPJ2: "In (*END OF LNP*), did you have any other job in a state or cooperative enterprise or organization at the *same time* as the job we just talked about?)

PRIUJOB: "In (*END OF LNP*), did you do any kind of private work or have a private job other than a private plot?)

(LOGIT model: $(\text{LOG}(p/(1-p)))/2 + 5 = \text{Intercept} + BX$):

	Regression Coefficient	Standard Error	T-Statistic
SUBORD	-.00201	.00214	-.93777
MERIT	-.21920	.13597	-1.61216
PINKSLIP	.04992	.05537	.90165
FDUMMY	-.36701	.12585	-2.91621
RAGE	-.01348	.00568	-2.37292
DSKILLED	.06749	.13882	.48616
YREALCH	.03034	.12943	.23438
DOWN	.13693	.14784	.92621
CONSTANT	4.85234	.29261	16.61706

Number of observations = 458

APPENDIX A

INDEPENDENT VARIABLES

BRANCH:

BD1	Manufacturing (Note this has been dropped in regressions. Branch coefficients have the interpretation as the difference from manufacturing branch effect.)
BD2	Agriculture and Forestry
BD3	Transportation and Communications
BD4	Construction
BD5	Trade, soc. catering
BD6	Mat.Tech.Supply, other prod. serv
BD7	Mun. econ. Housing
BD8	Health Phys. culture
BD9	Education
BD10	Culture
BD11	Science
BD12	Credit, State, Party

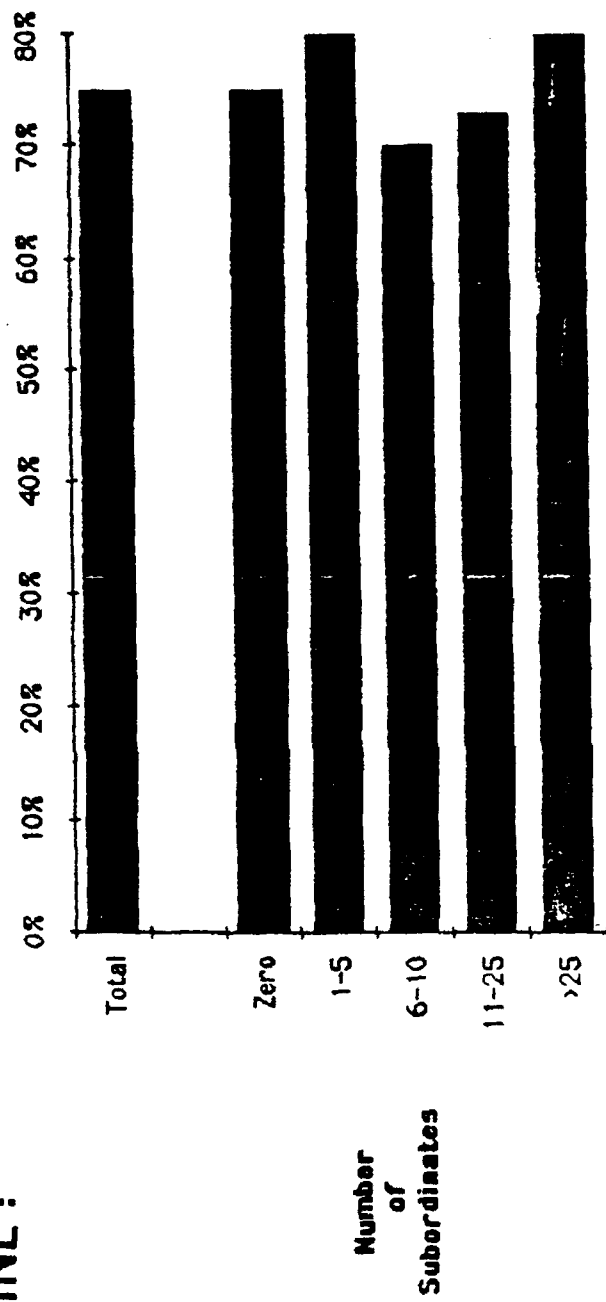
ENTERPRISE:

SUPPLY	Rarely or never had sufficient equipment/supplies for job
BOOZE	Rarely or never had problem with alcoholism/absenteeism
MERIT	Most important for job advancement (high.ed., diploma knowledge, experience, talent, ability).
PINKSLIP	Frequency of observed firings for poor performance (0=never,...,3=usually)

RESPONDENT:

FDUMMY	Female
PAGE	Respondent's Age
DSKILLED	Completed secondary specialized school and higher
SUBORD	Number of subordinates in R's LNP job.
YREALCH	perceived decrease in living standard--Those R's reporting that prices had increased faster than own wage
DOWN	Reported a decline in productivity during LNP
REDHIQ	Highest educational attainment (0= <4 years of general education,..., 8 = completed a program of higher education)

PRODUCTIVITY DECLINE?



"It has been said that productivity of labor in the Soviet Union has been declining over the years. From your own experience during your LNP, would you have said that was true, or not?"

FIGURE 1

MAIN REASON FOR PRODUCTIVITY DECLINE (N=282)

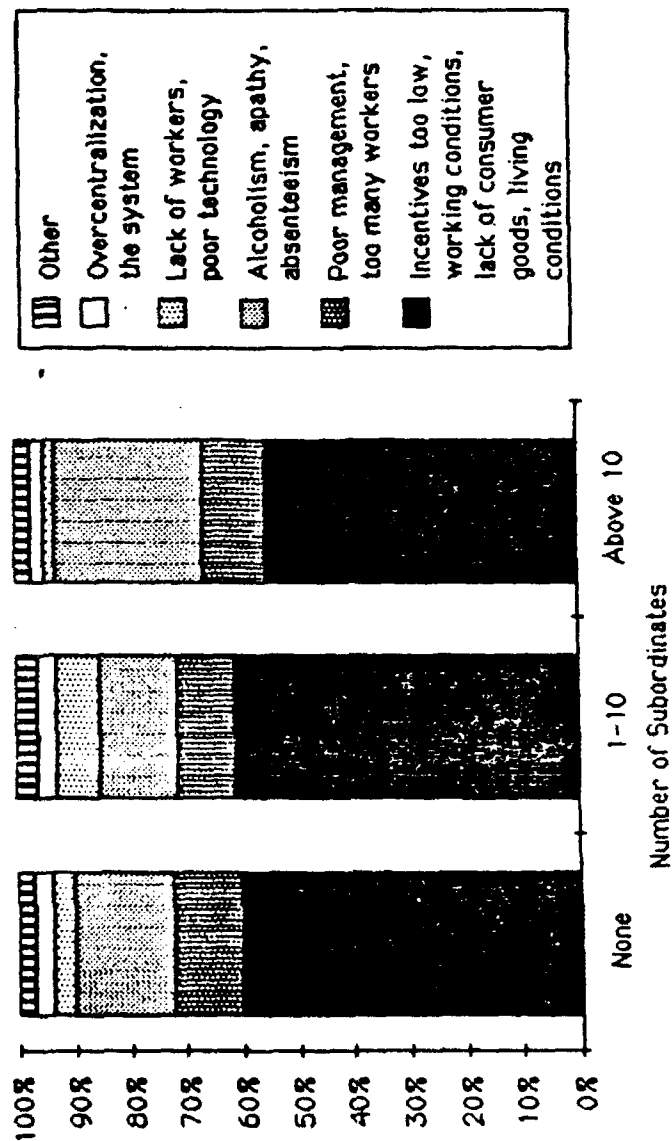


FIGURE 11a

FIGURE 11b

MAIN CAUSES OF PRODUCTIVITY DECLINE BY RESPONDENT'S BRANCH

Percent of Respondents Reporting Decline in Productivity

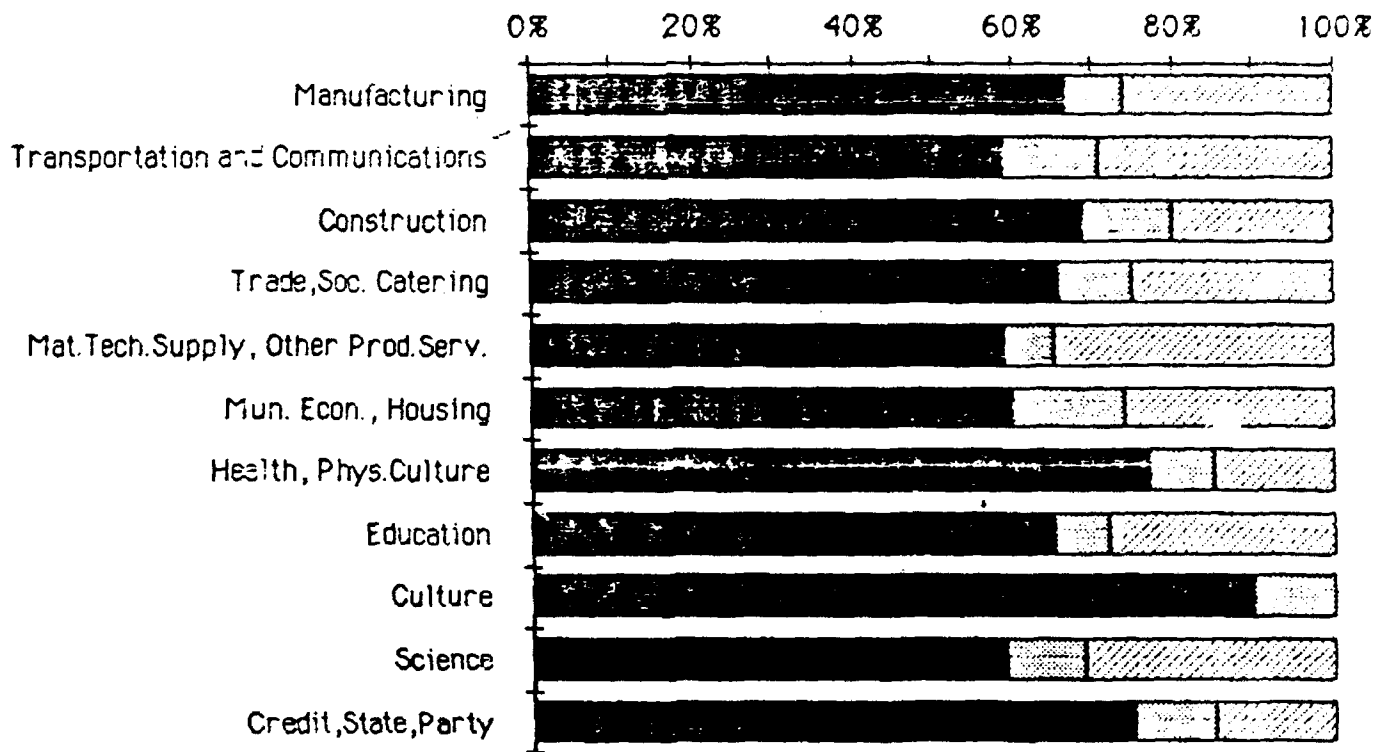


FIGURE IIc

REPORTED INCENTIVE PROBLEMS
BY RESPONDENT'S EDUCATIONAL LEVEL

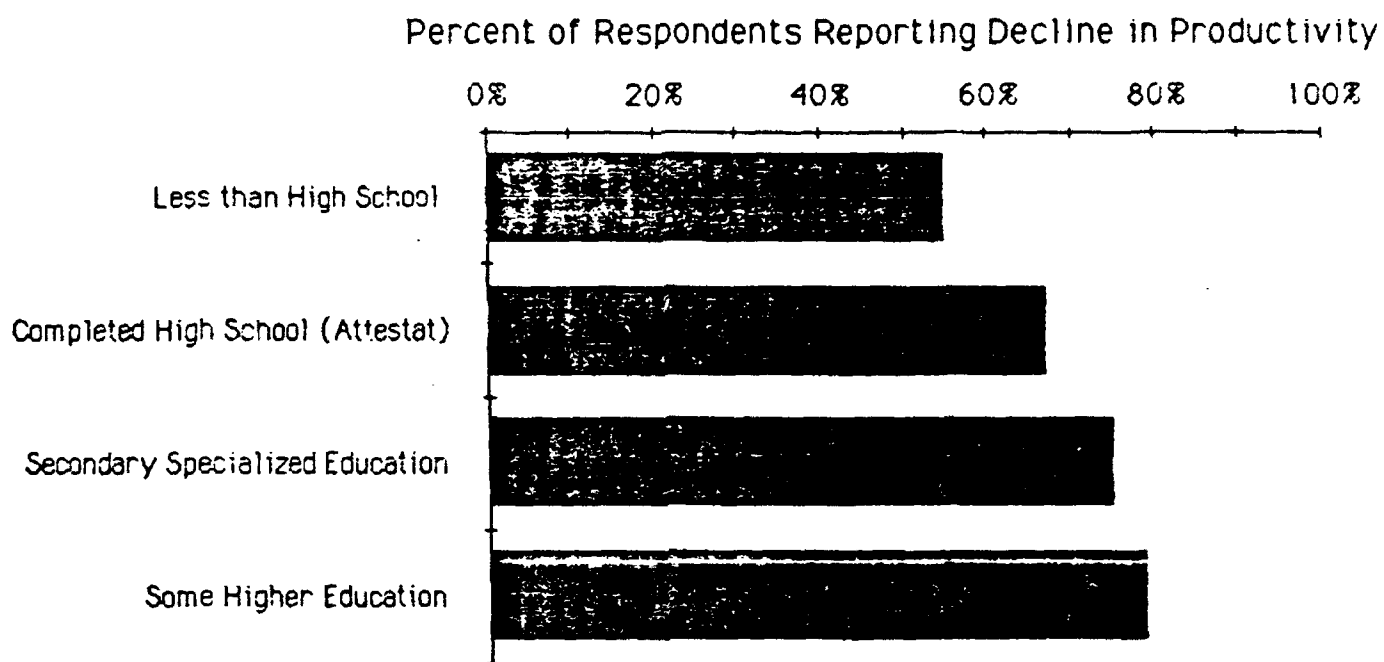
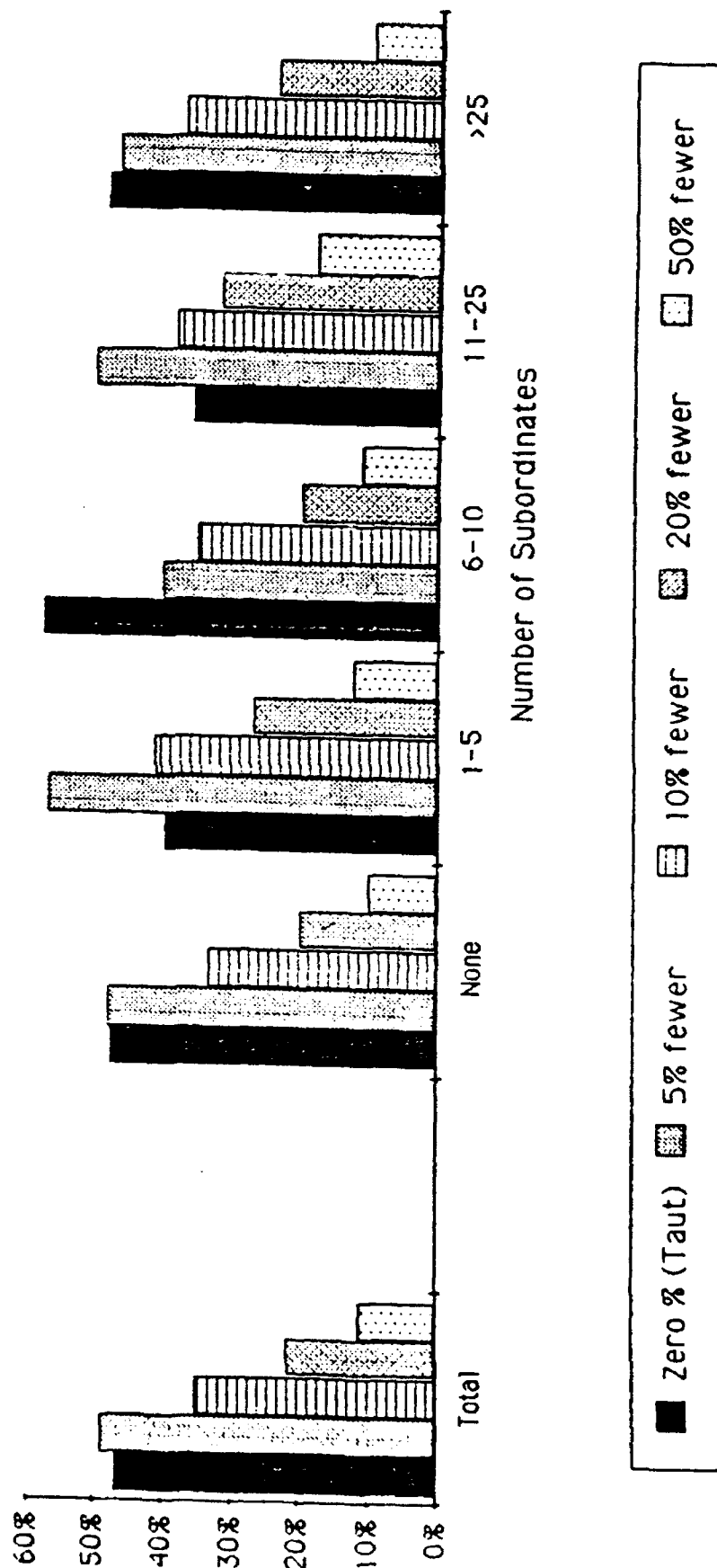


FIGURE IIIa

PERCENT OF RESPONDENTS REPORTING
PLAN COULD BE FULFILLED WITH FEWER WORKERS

(N=383)



PERCENT OF RESPONDENTS WHO REPORTED HAVING PLANS

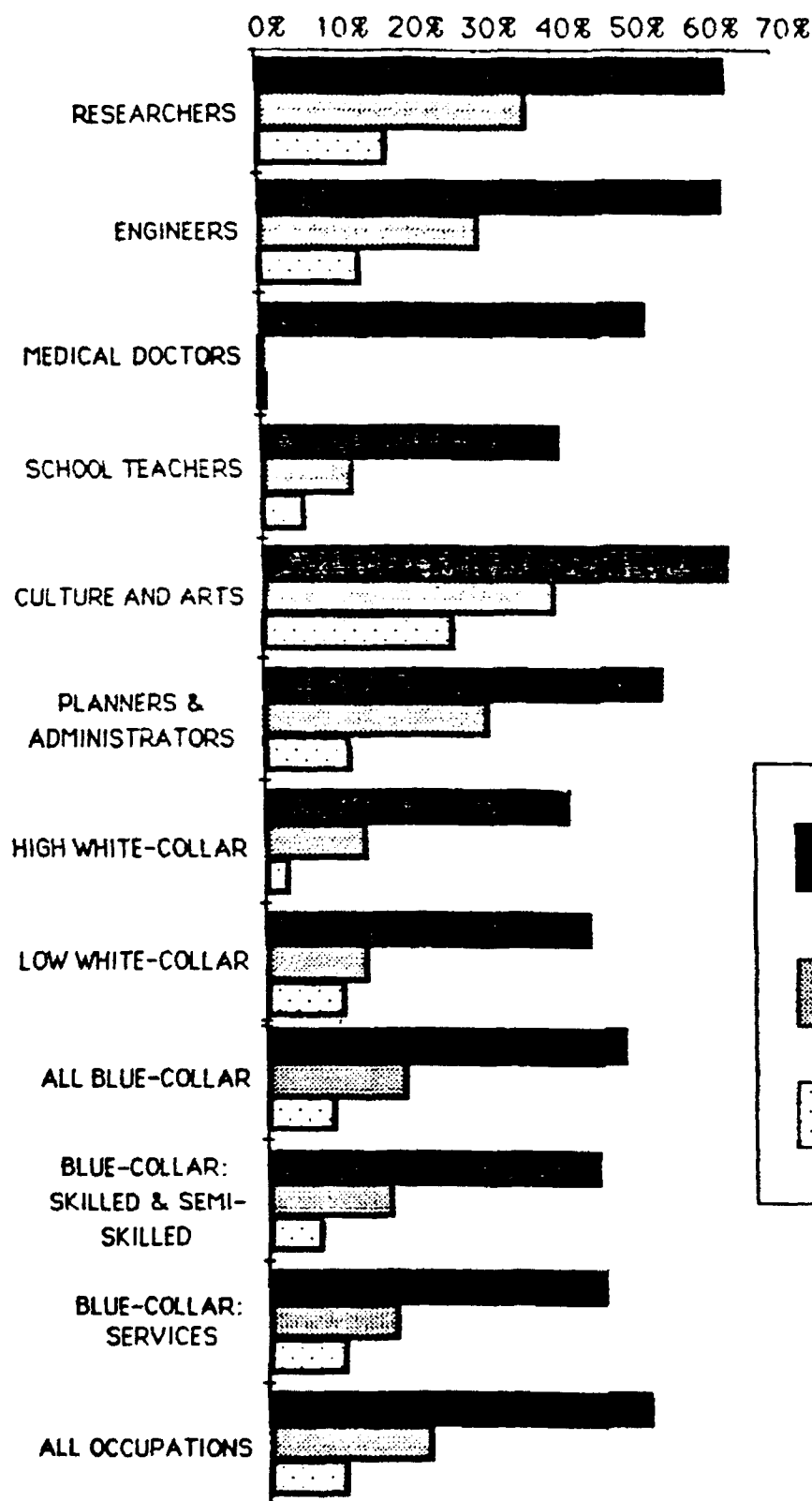
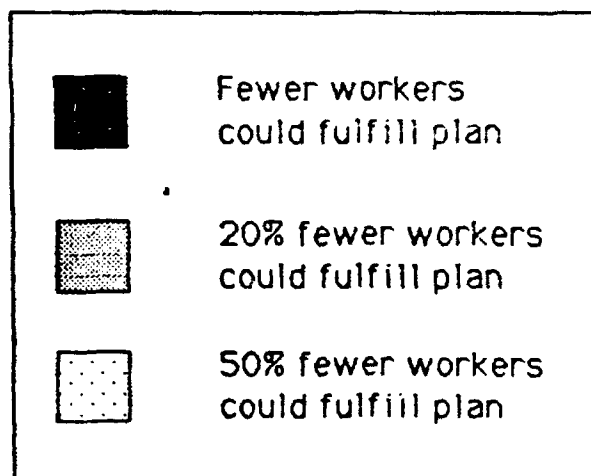


FIGURE IIIB
PERCEIVED
PLAN SLACK
BY
OCCUPATION*



Percent of Working Respondents

0% 20% 40% 60%

Only Sometimes, Rarely
Or Never Able To Make
Use Of Specialty

0
1-5
6-10
11-25
26+

Only Sometimes, Rarely
Or Never Had Enough
Information For Job

0
1-5
6-10
11-25
26+

Often Or Nearly Always
Had To Act Against
Own Better Judgment

0
1-5
6-10
11-25
26+

Only Sometimes, Rarely
Or Never Had Sufficient
Supplies To Do Job

0
1-5
6-10
11-25
26+

Often Or Nearly Always
Problems With Alcoholism
And Absenteeism
Among Workers

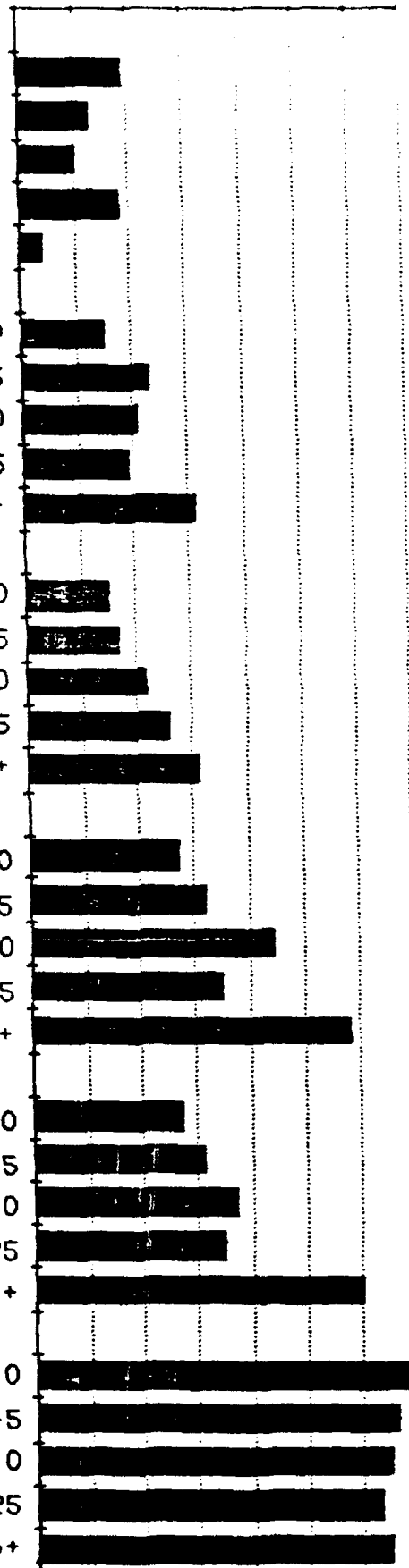
0
1-5
6-10
11-25
26+

Only Sometimes, Rarely
Or Never Able To
Influence Supervisor's
Decisions Affecting
Respondent

0
1-5
6-10
11-25
26+

FIGURE IV

ASSESSMENT
OF JOB PROBLEMS
BY TYPE OF
PROBLEM AND
BY NUMBER OF
SUBORDINATES



MOST IMPORTANT REASONS FOR JOB ADVANCEMENT

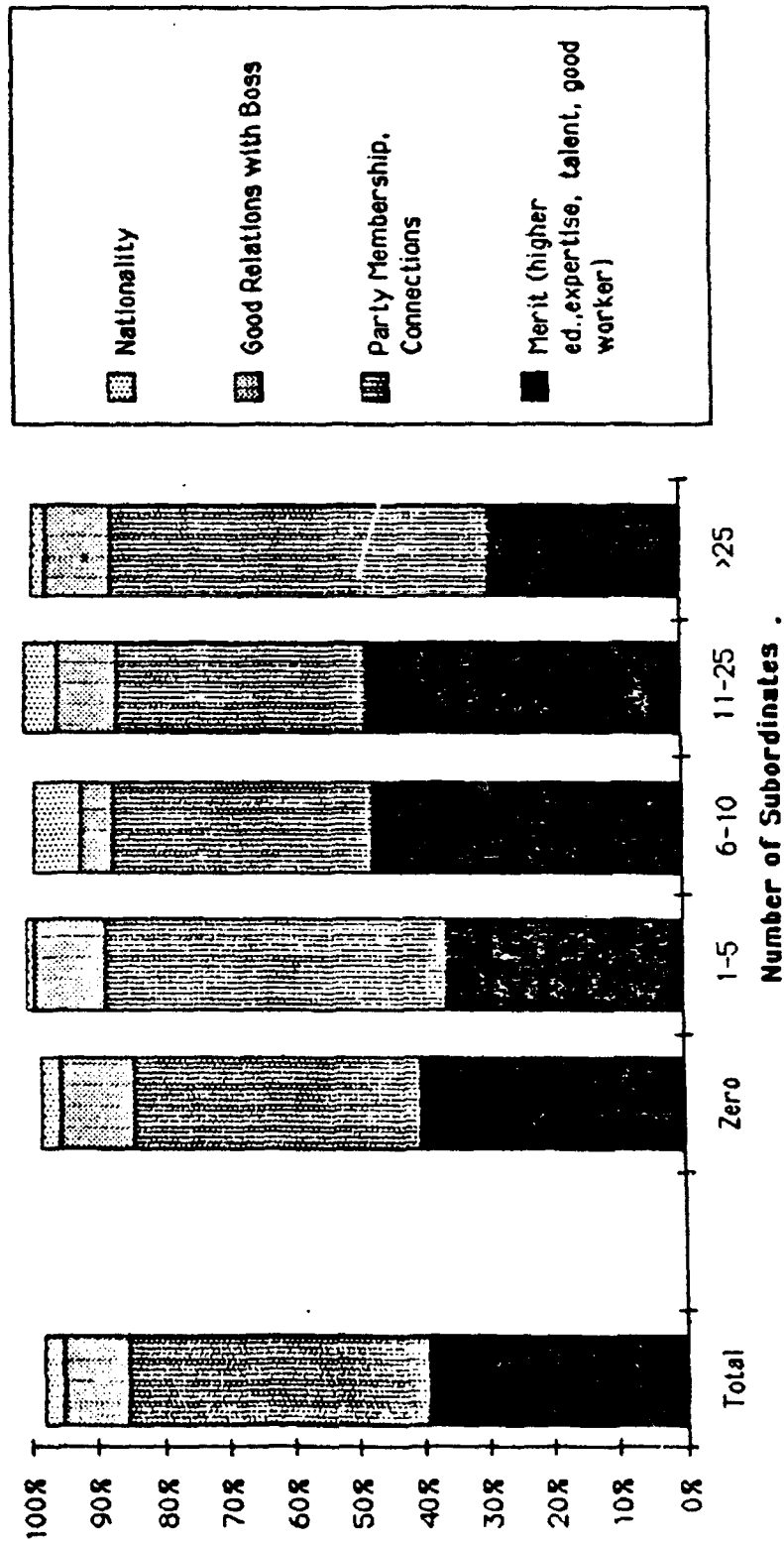


FIGURE V

FIGURE VI

TIME THEFT
BY IMPORTANCE OF MERIT, FREQUENCY OF FIRINGS
AND RESPONDENT'S EDUCATION

